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EXAMINER	
SAVLA, ARPAN P	
ART UNIT	**PAPER NUMBER**
2185	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,013	CHEN, LING-CHIEN	
	Examiner	Art Unit	
	Arpan P. Savla	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The instant application having Application No. 10/757,013 has a total of 11 claims pending in the application, there are 2 independent claims and 9 dependent claims, all of which are ready for examination by Examiner.

INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

1. Applicant's oath/declaration has been reviewed by Examiner and is found to conform to the requirements prescribed in 37 CFR 1.63.

STATUS OF CLAIM FOR PRIORITY IN THE APPLICATION

2. As required by MPEP § 201.14(c), acknowledgment is made of Applicant's claim for priority based on an application filed in Taiwan on March 12, 2003.

INFORMATION CONCERNING DRAWINGS

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 2-way interleave mode of claim 10 must be shown or the feature canceled from the claim. Examiner recognizes the upper portion of Figure 3 illustrates a 2-way interleave mode, however, that figure is not consistent with independent claim 6. Independent claim 6 calls for the 8 page sets to be allocated among all 4 memory chips. However, the upper portion of

Figure 3 only illustrates the 8 page sets allocated among just the first 2 memory chips. Applicant is reminded no new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by Examiner, Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

OBJECTIONS

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is

suggested: "Method Of Physical Page Allocation For Flash Memory Through 2-Way And 4-Way Interleaving."

5. The disclosure is objected to because of the following informalities:

The entire disclosure (especially the first paragraph of the "Background of the Invention") has numerous grammatical errors. Examiner has made the best effort to reasonably interrupt the current disclosure in order to perform a reasonable search of the prior art. Applicant is kindly asked to proofread the disclosure and make appropriate corrections, however, Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

Claims

6. **Claims 5 and 10 are objected to because of the following informalities:**

7. **As per claim 5**, the phrase "third page" on pg. 10, line 19 of the disclosure should read "third page set." Examiner interrupts the claim language as such because pg. 10, lines 19-20 read "second page set."

8. **As per claim 10**, Examiner believes that the phrase "2-way interleave mode" should read "4-way interleave mode." As stated in the drawings objection above, there is no drawing that illustrates a 2-way interleave mode **and** follows the limitations of independent claim 6 which call for the 8 page sets allocated among all 4 memory chips. However, Figure 5 illustrates a 4-way interleave mode **and** the 8 page sets allocated among all 4 memory chips. Also, Examiner believes that "the seventh page set next to the fourth page set" is illustrated in Figure 5 by means of the arrow that points from CS3

(the chip where the seventh page set is located) to CS0 (the chip where fourth page set is located). Therefore, Examiner believes that "2-way interleave mode" should read "4-way interleave mode."

9. **Also, as per claim 10**, the phrase "fifth page" on pg. 11, line 17 of the disclosure should read "fifth page set." Examiner interrupts the claim language as such because pg. 11, lines 17-18 read "seventh page set."

Appropriate correction is required.

REJECTIONS NOT BASED ON PRIOR ART

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 2-5 and 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. **As per claim 2**, pg. 10, line 12 of the disclosure recites the limitation "said memory." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said multiple memory chips are flash memories."

13. **As per claim 3**, pg. 10, lines 14-15 of the disclosure recites the limitation "said memory size of each page." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said sequential pages are each 512 bytes in size."

14. **As per claim 4**, pg. 10, lines 16-17 of the disclosure recites the limitation "said memory size of each page set." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said page set is 512*N bytes in size."

15. **As per claim 5**, pg. 10, line 18 of the disclosure recites the limitation "said allocation method." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said method for a physical page allocation of multiple memory chips."

16. **As per claim 7**, pg. 11, line 10 of the disclosure recites the limitation "said memory." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said multiple memory chips are flash memories."

17. **As per claim 8**, pg. 11, lines 12-13 of the disclosure recites the limitation "said memory size of each page." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said sequential pages are each 512 bytes in size."

18. **As per claim 9**, pg. 11, lines 14-15 of the disclosure recites the limitation "said memory size of each page set." There is insufficient antecedent basis for this limitation

in the claim. Applicant may consider amending the claim to read "said page set is 512*N bytes in size."

19. **As per claim 10**, pg. 11, line 16 of the disclosure recites the limitation "said allocation method." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said method for a physical page allocation of multiple memory chips."

20. **Also as per claim 10**, pg. 11, line 18 of the disclosure recites the limitation "the fourth page sets". There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "the fourth page set."

21. **As per claim 11**, pg. 11, line 19 of the disclosure recites the limitation "said allocation method." There is insufficient antecedent basis for this limitation in the claim. Applicant may consider amending the claim to read "said method for a physical page allocation of multiple memory chips."

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

22. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

23. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Klein et al. (United States Patent 5,671,439).

24. **As per claim 1**, Klein discloses a method for a physical page allocation of multiple memory chips comprises steps of:

defining N sequential pages as a page set, wherein N is a positive integer (col. 5, lines 52-54); It should be noted that "sector" is analogous to "page" and that "block" is analogous to "page set."

allocating a first page set into a first memory chip (col. 6, lines 21-25); It should be noted that "block 0" is analogous to "first page set" and that "drive A" is analogous to "first memory chip."

allocating a second page set into a second memory chip, wherein the second page set is sequentially next to the first page set (col. 6, lines 21-26; Fig. 1a); It should be noted that "block 1" is analogous to "second page set" and that "drive B" is analogous to "second memory chip."

allocating a third page set into the first memory chip (col. 6, lines 21-25); It should be noted that "block 2" is analogous to "third page set."

and allocating a fourth page set into the second memory chip, wherein the fourth page set is sequentially next to the third page set (col. 6, lines 21-26; Fig. 1a). It should be noted that "block 3" is analogous to "fourth page set."

25. **As per claim 2**, Klein discloses said memory is a flash memory (col. 14, line 66 - col. 15, line 5).

26. **As per claim 3**, Klein discloses said memory size of each page is 512 Bytes (col. 5, lines 49-50).

27. **As per claim 4**, Klein discloses said memory size of each page set is 512*N Bytes (col. 5, lines 49-60).

28. **As per claim 5**, Klein discloses said allocation method is a 2-way interleave mode according to said third page next to said second page set (col. 6, lines 21-26; Figs. 1a and 1b). It should be noted that allocating even blocks to one drive and allocating odd blocks to another drive is analogous to "2-way interleaving."

29. Claims 6-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Gorobets et al. (World Intellectual Property Organization (WIPO) WO 200049488 A1).

30. **As per claim 6**, Gorobets discloses a method for physical allocation for multiple memory chips comprises steps of:

Defining N sequential pages as a page set, wherein N is a positive integer (pg. 20, lines 20-21; Fig. 1); It should be noted that "sector" is analogous to "page." It should also be noted that Gorobets allocates by individual sectors, therefore, Gorobets's system discloses N sequential sectors, where N = 1, as a page set. Thus, a single sector is equal to a page set.

Allocating a first page set into a first memory chip (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11); It should be noted that "FLASH chip" is analogous to "memory chip."

Allocating a second page set into a second memory chip, wherein said second page set is sequentially next to said first page set (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

Allocating a third page set into a third memory chip (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

Allocating a fourth page set into a fourth memory chip, wherein the fourth page set is sequentially next to the third page set (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

Allocating a fifth page set into the first memory chip (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

Allocating a sixth page set into the second memory chip, wherein the sixth page set is sequentially next to the fifth page set (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

Allocating a seventh page set into the third memory chip (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

and Allocating a eighth page set into the fourth memory chip, wherein the eighth page set is sequentially next to the seventh page set (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11);

31. **As per claim 7**, Gorobets discloses said memory is a flash memory (pg. 18, lines 28-30; pg. 42, lines 11-13).

32. **As per claim 8**, Gorobets discloses said memory size of each page is 512 Bytes (pg. 27, line 34 – pg. 28, line 3; Fig. 3, element 1a).

33. **As per claim 9**, Gorobets discloses said memory size of each page set is 512*N Bytes (pg. 27, line 34 – pg. 28, line 3; Fig. 3, element 1a). It should be noted that as stated earlier in the citation for claim 7, Gorobets's system has an N = 1, therefore, the memory size of a page set (i.e. sector) is 512 bytes.

34. **As per claim 10**, Gorobets discloses said allocation method is a **4-way interleave mode** (see objection for claim 10 above) according to the fifth page next to the second page set and the seventh page set next to the fourth page sets (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11).

35. **As per claim 11**, Gorobets discloses said allocation method is a 4-way interleave mode according to the third page set next to the second page set, the seventh page set next to the sixth page set and the fifth page set next to the fourth page set (pg. 18, lines 28-30; pg. 42, line 32 – pg. 43, line 5; Fig. 11).

RELEVANT ART CITED BY THE EXAMINER

The following prior art made of record and not relied upon is cited to establish the level of skill in Applicant's art and those arts considered reasonably pertinent to Applicant's disclosure. See MPEP 707.05(e).

The following references disclose various **systems and methods relating to interleaving memory**.

U.S. Patent Number

5,341,486

6,081,878

6,725,321 (U.S. Patent of WIPO WO 200049488 A1, "Gorobets")

U.S. Patent Application Publication Number

2003/0046501

Conclusion

STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by MPEP 707.70(i):

CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, **claims 1-11** have received a first action on the merits and are subject of a first action non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arpan P. Savla whose telephone number is (571) 272-1077. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2185
February 1, 2006

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SUPERVISORY PATENT EXAMINER